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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,960	07/17/2003	David F. Arlasky	7444 (284*3)	6054
7590	02/04/2005		EXAMINER	
			SAN MARTIN, EDGARDO	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/623,960	ARLASKY, DAVID F.
	Examiner	Art Unit
	Edgardo San Martin	2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 06 December 2004.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 21-41 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 21-41 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 26 – 41 are objected to because of the following informalities:

- The enumeration of claim 26 was repeated with respect to which is supposed to be claim 27. The Examiner will consider the second occurrence of the numbering 26 – 40 as claims 27 – 41 respectively, in addition to their proper claim dependency;
- Proper claim 30 should end in an ending period.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 21 - 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al. (US 4,263,981) in view of Lyman (US 4,109,753), and further in view of Chang (US 6,343,673).

With respect to claims 21, 33 and 40, Weiss et al. teach a muffler comprising a shell (Fig.1, Item 19) with an expansion chamber tube (Fig.1, Item 17) coaxially attached to the shell such that an interior of the shell and an exterior of the expansion chamber tube form a sound suppression sleeve containing sound suppression material

(Fig.1, Item 18), wherein an interior of the expansion chamber tube forms an expansion chamber (Fig.1, Item 16), the expansion chamber tube is perforated with apertures to achieve about 40-80% porosity (Col.3, Line 55 – Col.4, Line 10), such that the expansion chamber is in communication with the materials in the sound suppression sleeve, an inlet tube (Fig.1, Item 13) is attached to an inlet (Fig.1, Item 15) of the shell such that an inlet tube interior is in communication with the expansion chamber, but fail to disclose wherein a rotatable propeller is attached to the muffler such that the propeller is capable of rotation when exhaust gas passes from the inlet tube into the expansion chamber, and wherein the propeller spins the exhaust gas to facilitate its passage through the expansion chamber, and through an outlet in the shell.

Nevertheless, Lyman teaches a muffler comprising a shell with a passage tube coaxially attached to the shell such that an interior of the shell and an exterior of the passage tube form a sound suppression sleeve containing sound suppression material (Fig.2), wherein an interior of the passage tube is perforated with apertures such that the inside of the passage tube is in communication with the materials in the sound suppression sleeve, an inlet tube (Fig.2, Item 44) is attached to an inlet (Fig.2, Item 36) of the shell such that an inlet tube interior is in communication with the passage tube, wherein a diffuser is attached to the muffler such that the diffuser is capable of creating a rotation effect when exhaust gas passes from the inlet tube into the passage tube, and wherein the diffuser spins the exhaust gas to facilitate its passage through the expansion chamber, and through an outlet in the shell (Col.5, Line 50 – Col.6, Line 30). However, Lyman fails to disclose wherein the diffuser is a rotatable propeller.

On the other hand, Chang teaches a muffler comprising a shell with a passage tube coaxially attached to the shell such that an interior of the shell and an exterior of the passage tube form a sound suppression sleeve containing sound suppression material (Fig.7), wherein a rotatable propeller (Fig.7, Item 30) is attached to the muffler such that the propeller is capable of rotation when exhaust gas passes from the inlet tube into the passage tube, and wherein the propeller spins the exhaust gas to facilitate its passage through the expansion chamber, and through an outlet in the shell (Col.2, Lines 37 – 58).

It would have been obvious to a person with ordinary skill in the art at the time of the invention was made to place the Chang rotatable propeller in the inlet tube of the Lyman muffler structure, and employ the Chang and Lyman teachings combination with the Weiss et al. expansion chamber design because the complete combination would provide a muffler structure that would increase the performance and efficiency of an engine, increasing the engine power and saving the fuel of an vehicle by creating a low back pressure environment due to the expansion chamber configuration in addition to the rotatable propeller that would accelerate the exhaust velocity of the gasses flowing into the muffler.

With respect to claims 22, 23 and 36, Chang teaches (regarding claim 3) wherein the propeller (Fig.5, Item 34) is mounted on a shoulder screw (Fig.5, Item 33) that is rotatably mounted in a bearing (Fig.5, Item 331). Regarding claim 2, the Examiner considers that it would have been obvious to one of ordinary skill in the art at the time the invention was made to mount the propeller on a bearing that is rotatably mounted on

a shoulder screw, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70; and since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167. In addition, the Examiner considers that it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a Teflon-filled bronze bearing, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

With respect to claims 24, 25, 38 and 39, Weiss et al. teach wherein the expansion tube has between about 75% to about 90% greater flow cross-sectional area than the inlet tube.

With respect to claims 26, 27 and 34, Chang teaches the rotatable propeller type blade assembly comprising at least two blades (Fig.2).

With respect to claims 28, 29 and 35, the Examiner takes official notice that it is well known in the art of turbomachinery design to select a degree of inclination of the blade with respect to the path of flow in order to produce a desired output of the turbomachine. In addition, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With respect to claim 30, the Examiner takes Official Notice that it is well known in the art of acoustics to employ fiberglass, glass wool, copper wool, copper strands, steel wool and a combination of the mentioned materials as sound suppressing

materials. These materials could withstand high temperatures while exhibiting good sound suppressing characteristics.

With respect to claims 31 and 32, Chang and Lyman teach wherein the exhaust chamber system is joined directly to an internal combustion engine, or wherein the exhaust chamber system is joined indirectly to an internal combustion engine.

With respect to claims 37 and 41, Chang teaches wherein the rotation of the rotatable propeller forces the exhaust gases into a tightly spun vortex as the exhaust gases expand in the expansion chamber creating a vacuum to draw additional exhaust gases from the internal combustion engine (Col.2, Lines 37 – 61).

Response to Arguments

3. Applicant's arguments filed on December 6, 2004 have been fully considered but they are not persuasive. In response to Applicant's piecemeal analysis of the references, it has been held that one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references. *In re Keller*, 208 USPQ 871 (CCPA 1981).

With respect to the Lyman reference, the Examiner would like to establish that the reference has being use to disclose the location of a diffuser in an inlet tube, which has been obviously modified by Chang to be a rotatable propeller type blade assembly, as discussed above.

With respect to the Chang reference, the Applicant unfortunately cut short in his argument the extract of the specification, which establishes that "the engine of the

vehicle has a high torque at a low rotational speed, thereby **increasing** the power and **saving** the fuel of the vehicle. In addition, the turbine exhaust device 30 can accelerate the exhaust velocity of the gas by rotation of the vane wheels 34 and 35." (Please see Col.2, Lines 46 – 50).

The Examiner considers that the obvious combination of the patents to Weiss et al., Lyman and Chang teach the limitations described in the claims as discussed above.

Conclusion

4. The attached hereto PTO Form 892 lists prior art made of record that the Examiner considered it pertinent to applicant's disclosure.
5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edgardo San Martin whose telephone number is (571) 272-2074. The examiner can normally be reached on 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571) 272-2107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Edgardo San Martín
Patent Examiner
Art Unit 2837
Class 181
January 26, 2005